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FARMS REPORTING DAIRY SALES IN 1964

SELECTED CHARACTERISTICS

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ABSTRACT

A nationwide survey of farms in 1964 indicated major differences in the characteristics of farms reporting dairy sales by region and by level of mechanization. Among regions, the average volume of milk sold per farm varied from 108,000 pounds in the Northern Plains to 834,000 pounds in the Pacific region. The percentage of total farm sales from dairy sources varied from 16 percent in the Northern Plains to 85 percent in the Northeast region. In the Appalachian region, the market value of total assets was about $52,000 per farm, compared with $160,000 in the Pacific region. The average ratio of liabilities to assets owned was as low as 0.11 in the Appalachian and Delta States regions and as high as 0.18 in the Corn Belt, Northern Plains, and Pacific regions.

Only 4 percent of the farms reporting milk sales in the important Northeast and Lake States dairy areas had milking parlors. This compared with 37 percent in the Delta States region and 62 percent in the Pacific region. Farms equipped with milking parlors sold 50 percent more milk, obtained a larger proportion of total farm sales from dairy sources, and used more seasonal labor and total labor per farm than farms equipped with conventional stanchion barns.

Relationships between the pounds of milk sold and (1) operator's age, (2) total liabilities of the farm operator, and (3) percentage of total farm sales from dairy sources and relationships between operator's age and total liabilities of the farm operator were statistically significant.

Key Words: Farm characteristics, dairy technology, farm dairy specialization, labor use, farm assets and liabilities.

Washington, D.C. 20250 June 1970

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SUMMARY

Characteristics of farms producing our national supply of milk and other dairy products vary considerably among and within regions of the United States. These differences clearly show that the rate of adoption of new production techniques has varied by regions and will probably continue to do so.

In 1964, major regional differences in characteristics of farms producing dairy products were:

> (1) Average size of the dairy enterprise on these farms ranged from 108,000 pounds in the Northern Plains to 834,000 pounds in the Pacific; (2) specialization in dairy production, as measured by percentage of farm sales from dairy sources, varied from 16 percent in the Northern Plains to 85 percent in the Northeast; (3) average total assets per farm were $52,000 in the Appalachian region, compared with $160,000 in the Pacific; (4) proportion of liabilities to assets owned ranged from 11 percent in the Appalachian and Delta States regions to 18 percent in the Corn Belt, Northern Plains, and Pacific regions; and (5) only 4 percent of the farms in the Dairy Belt (Northeast and Lake States) had milking parlors, compared with 37 percent in the Delta States and the Pacific region and 62 percent in the Appalachian region.
>
> Compared with farms with stanchion barns, those with milking parlors: (1) sold half again as much milk--247,000 and 367,000 pounds, respectively; (2) had a higher degree of specialization in dairying; (3) used more labor per farm, but had greater milk production per hour of labor; and (4) had a higher peak seasonal demand for labor, because production of forage for greater numbers of cattle required more seasonal labor.

FARMS REPORTING DAIRY SALES IN 1964
SELECTED CHARACTERISTICS

by

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INTRODUCTION

The U.S. dairy production sector is experiencing some dramatic changes. Dairy herds are fewer and larger now than a decade ago. Technological developments are being made in several phases of production. These changes are likely to continue over the next decade.

This report presents selected characteristics of farms that reported dairy sales in 1964.[2] This information provides new insights into: (1) the forces that have changed and will probably continue to change, the dairy sector, and (2) the nature of the dairy production sector in various parts of the United States. More specifically, the report summarizes by region information on pounds of milk sold per farm, degree of specialization in dairy production, age of operators, and total farm assets and liabilities. Then, those characteristics for farms that had milking parlors are compared with those for farms with conventional stanchion barns. The impact of these two levels of technology on labor requirements is shown. Lastly, the degree of relationship between selected farm characteristics is shown, based on simple regression analysis.

DATA SOURCE

In 1965, the Department's Economic Research Service (ERS) conducted a nationwide sample survey of 10,800 farms in the 48 contiguous States to determine the use of pesticides on crops and livestock and of certain other practices by farmers in 1964.[3] Farmers with $5,000 or more gross sales were surveyed in all except the Appalachian, Delta States, and Southeast regions. In these regions, farms with $2,500 or more gross sales were included in the survey. The present report is based on information selected from the survey for 3,649 farms that reported having dairy sales in 1964.[4] These farms are representative of most farms in the commercial dairy sector. They are not necessarily dairy farms, but are a heterogenous group of farms ranging from highly specialized dairy farms to those on which dairying is a very minor enterprise.

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[1] Stationed at the University of Minnesota, St. Paul, Minn.

[2] The group of farms includes all that reported dairy sales regardless of the amount of products sold. In contrast, the census of agriculture defines a "dairy farm" as one that obtains at least 50 percent of gross sales from the dairy enterprise.

[3] The survey was conducted under congressional authorization.

[4] Dairy sales include sale of milk, cream, dairy calves, and dairy cows.

Figure 1 shows the farm production regions in the United States and the regional distribution of the number of survey farms reporting dairy sales. In this report, data are compared for eight of the Nation's 10 farm production regions. The Southeast and Mountain regions are excluded because of the small number of farms in the former and the great variability of farming conditions in the latter.

FARM CHARACTERISTICS BY REGIONS

Characteristics of farms producing our national supply of milk and other dairy products vary considerably among and within regions of the United States. Dairying on a dry lot in Southern California is quite different from the relatively small supplemental dairy enterprise on a large farm in the Northern Plains. The following sections examine by farm production regions, some of the characteristics of farms reporting dairy sales in 1964.

Milk Sales Per Farm

Average milk sales per farm varied from 108, 000 pounds in the Northern Plains to 834, 000 pounds in the Pacific, and averaged 265, 000 pounds for the eight regions (table 1). In the Dairy Belt (Northeast and Lake States), milk sales per farm averaged about 290, 000 pounds. The size of operation within regions also varied greatly. In the Northern Plains and Appalachian regions, nearly two-thirds of the farms reported annual milk sales of less than 100, 000 pounds. In contrast, there were more farms in the Southern Plains and Pacific that sold 500, 000 pounds of milk or more than there were farms selling less than 200, 000 pounds.

Specialization in Dairy Production

Dairy sales expressed as a proportion of total farm sales is one measure of specialization in dairy production. The degree of specialization varied from an average of 85 percent dairy sales in the Northeast to only 16 percent in the Northern Plains (table 2). Corn Belt and Appalachian farms reported substantially less than half their gross sales as being from dairy sources. In the Northeast, Delta States, Southern Plains, and Pacific regions, more than two-thirds of the farms surveyed reported dairy sales of 70 percent or more of total sales. These farms were highly specialized dairy farms. Farms in the Lake States were moderately specialized in dairying--most had substantial incomes from other sources. In the eight regions, dairy sales averaged 54 percent of total farm sales.

Bimodal distributions were found in the Delta States, Southern Plains, and Pacific regions. There, many farms were highly specialized or were relatively unspecialized, with few in between.

Age of Operator

Average age of operators varied from 45 in the Lake States and Northern Plains to 49 in the Appalachian region. The largest proportion of operators were 45 to 54

NUMBER OF FARMS REPORTING DAIRY SALES, BY FARM PRODUCTION REGIONS, ERS PESTICIDES SURVEY, 1964

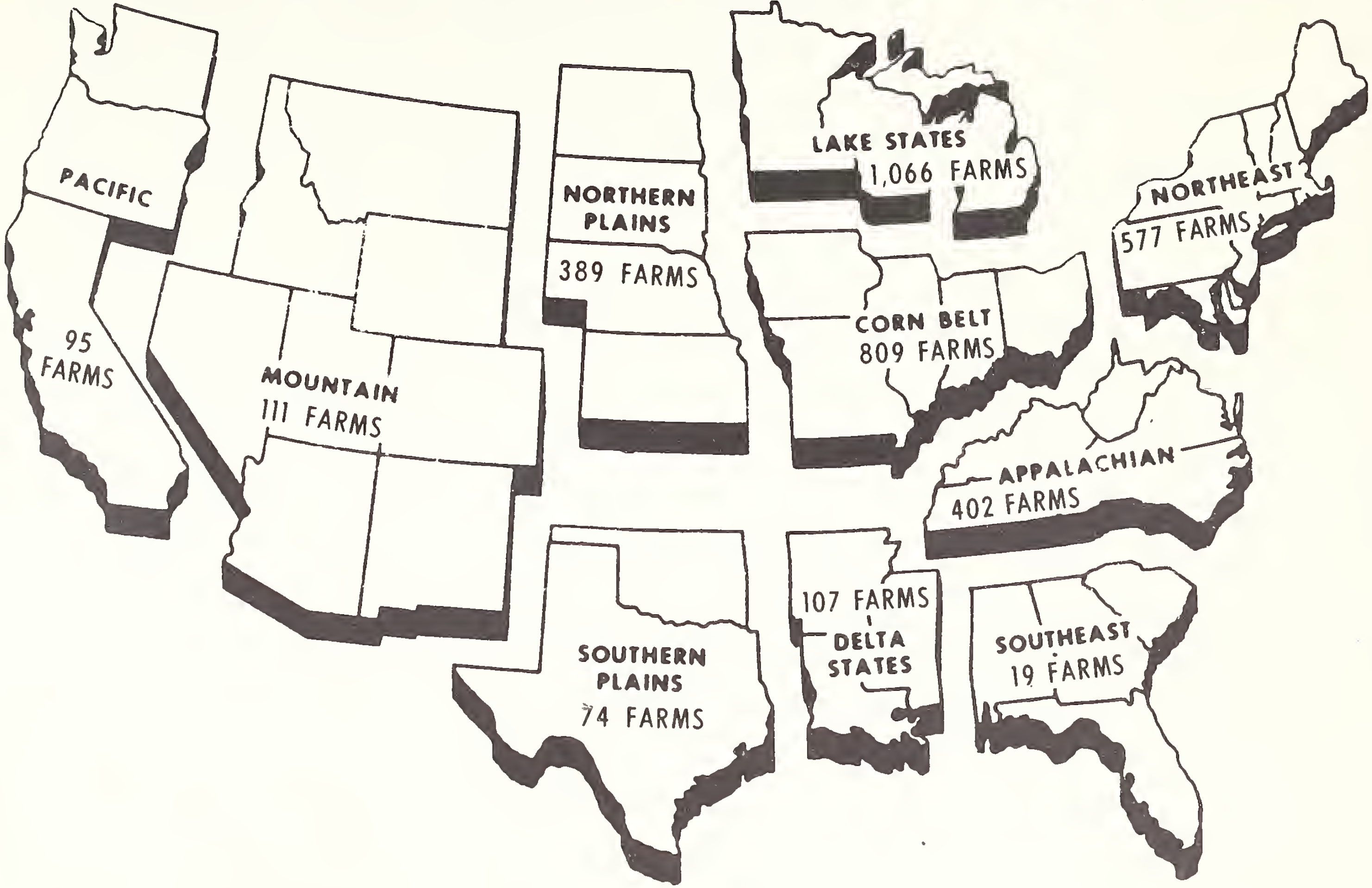

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Figure 1

years old in all regions (table 3). In the Northeast and Appalachian regions, 8 and 10 percent, respectively, were 65 or older. These percentages were much higher than for the other regions.

Assets and Liabilities

The financial situation of a dairy farmer is critically important when he considers adding an expensive item of milking technology such as a milking parlor. The borrowing ability of the operator is largely determined by his financial situation. Total assets per farm (market value of assets owned plus liabilities) varied from an average of $52,456 in the Appalachian region to $159,797 in the Pacific. In the Northeast, Lake States, and Corn Belt, total assets per farm averaged about $60,000 (table 4).

Average net worth per farm varied from $47,000 in the Appalachian region to $136,000 in the Pacific.

The largest component of both assets and liabilities was "land and buildings," accounting for more than half of the total in all regions. "Livestock" and "motor vehicles and machinery" were the next two most important components in all regions.

A low liability asset ratio is, of course, more favorable than a high one, since it indicates that the farm operator has fewer liabilities relative to his assets. If he plans to expand or adopt new technology he should be able to obtain more borrowed capital than an operator with encumbered assets.

The overall ratio of liabilities to assets owned for U.S. farms was 18 percent in 1964. 5/ That compares closely with the ratios for most regions in the survey. On the average, the ratio was most favorable in the Appalachian and Delta States regions (11 percent) and least favorable in the Northern Plains, Corn Belt, and Pacific regions (18 percent). The ratio of liabilities to assets owned was less than 5 percent for over 40 percent of the farms reporting dairy sales in all regions except the Northern Plains. In no region did more than 8 percent of the farmers have liabilities that exceeded 50 percent of their owned assets (table 5).

CHARACTERISTICS OF FARMS BY MILKING SYSTEM IN USE

Studies have shown that the number of cows milked per man-hour is higher on farms with milking parlors than on farms with typical stanchion-barn housing. 6/ For the most part, parlors represent a more mechanized system of handling cows than do stanchion barns, and a shift to milking parlors represents a substitution of capital for labor. Adoption of milking parlors is generally associated with a farmer's goal of increasing volume of milk production and farm profits with fixed labor resources.

5/ See The Balance Sheet of Agriculture, 1968, U.S. Dept. Agr., Agr. Inform. Bul. No. 334, Jan. 1969, p. 27. (Note: Divide total liabilities by proprietor's equity for a comparable ratio.)

6/ For example, see Fuller, E.I., and Jensen, H.R., Alternative Dairy Chore Systems in Loose Housing, Univ. of Minn. Agr. Expt. Sta. Bul. 457, Feb. 1962; and Lindsey, M.M., The Herringbone Milking System, Economic Appraisal, Labor Efficiency Analysis, and Adjustment Possibilities, U.S. Dept. Agr., Prod. Res. Rpt. No. 45, Sept. 1960.

In the following sections, size of dairy enterprise, degree of specialization in dairy production, operator's age, total farm liabilities, ratio of liabilities to assets owned, and the structure of the labor force are compared for farms with milking parlors and with stanchion barns.

Farms With Milking Parlors

The adoption of milking parlor technology has not been widespread in the principal dairy belt--the Northeast and Lake States. Only 4 percent of this area's farms selling milk had parlors (table 6). Thirty-seven percent of farms in the Delta States and Pacific region had parlor technology. Of the Appalachian farms, 62 percent had milking parlors. This percentage appears unusually large, since data for 1958 indicate that only 22 percent of the milk cows in the Appalachian region were milked in parlors (table 7).[7] However, financial data indicate that Appalachian parlor farms had only a slightly greater proportion of liabilities to assets than stanchion farms, and had the lowest liabilities per parlor farm of any production region (table 8). Thus, it is possible that the economic incentive to adopt milking parlors was greater on Appalachian farms than on farms in other regions. Several factors should be noted: (1) Before the 1960's, most Appalachian herds were small and milked by hand; (2) quality of dairy barns and milking facilities was low; (3) relatively few could meet requirements for selling milk--even to milk processing plants--without new investment in milking facilities; (4) costs of labor and materials for constructing milking parlors were lower than in many other regions; and (5) herd size was still relatively small in 1964--10 to 20 head.

Milk Sales Per Farm

Milk production per farm was substantially higher on parlor farms than on stanchion farms in all except the Appalachian and Delta States regions (table 9). In these two regions, parlor farms sold less milk than stanchion farms and substantially less milk per farm than their counterparts in the other regions.

In the Northern Plains, parlor farms sold more than three times as much milk as stanchion farms did. In the Lake States and Corn Belt, parlor farms had about double the sales of stanchion farms.

Specialization of Production

The greatest difference in degree of specialization between the farms using parlor technology and the conventional stanchion farms occurred in the Northern Plains and Corn Belt. In the former region, dairy sales represented 49 percent of all farm sales, contrasted with only 13 percent on stanchion farms. Similar percentages in the Corn Belt were 60 and 34 percent, respectively. In the Northeast, Lake States, Delta States, and Pacific regions, most of the parlor farms were highly specialized dairy farms (table 10). Stanchion farms were less specialized.

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[7] Csorba, J. J., and Butler, G. C., Dairy Cows: Housing and Methods of Milking, U.S. Dept. Agr., Econ. Res. Serv., ERS-15, Aug. 1961. The 1958 and the 1964 samples are not directly comparable for a number of reasons, including exclusion of farms having fewer than 5 cows in 1958, and exclusion of farms having limited gross sales in 1964.

Age of Operator

Operators of parlor farms were significantly younger than those of stanchion farms in only the Lake States and Corn Belt regions (table 11). Age distribution for operators of parlor and stanchion farms in these two regions is shown in figure 2. The area under the curve represents 100 percent of the farms.

Labor Force and Production Efficiency

Milking parlors were designed to reduce labor input per cow and minimize stooping and drudgery in chores. Yet, total labor input on parlor farms in all but two regions exceeded that on stanchion farms. Parlor farm operators relied more upon both regular and seasonal hired workers than did stanchion farm operators (table 12).

The greater annual labor input on parlor farms is attributable to larger sized operations. The 501 parlor farms in the eight regions averaged 367,000 pounds of milk sold in 1964, compared with 247,000 pounds per farm for the 2,732 stanchion farms. Milk production averaged 48 pounds per hour on the parlor farms and only 36 pounds on the stanchion farms when all farm labor was attributed to dairy operations (table 13).

The parlor farms, in addition to having a higher total labor input, also had a higher seasonal demand for labor than did stanchion farms. In all but two regions--Northern Plains and Delta States--the percentage increase in labor input from the low month (February) to the high month (usually June or July) was significantly greater on parlor farms. Thus, parlor technology has not reduced the seasonality of demand for labor, but, in fact, has heightened it. Figures 3-5 show the seasonal use of labor on parlor farms and stanchion farms.

Parlor technology has reduced routine chore work to the extent that in the Northeast, in 1964, about the same labor input was required to produce 510,000 pounds of milk in parlor barns as was required to produce 340,000 pounds in stanchion barns. The greater annual labor input of parlor farms is associated primarily with the production of larger quantities of forage to feed a greater number of animals. In the Lake States, average milk output on parlor farms was nearly twice that on stanchion farms. Labor input during months of nonfield work on parlor farms was less than 10 percent above levels used on stanchion farms. However, the labor required to produce forage for the greater number of cows caused parlor farms to use four times as much seasonal labor. Thus, the ability to hire seasonal labor for production and harvest of forage may be a factor limiting adoption of milking parlor technology. In the Pacific region, where many parlor dairy farms are primarily drylot operations with all forage purchased, seasonal labor is of less importance than on the stanchion farms (fig. 6).

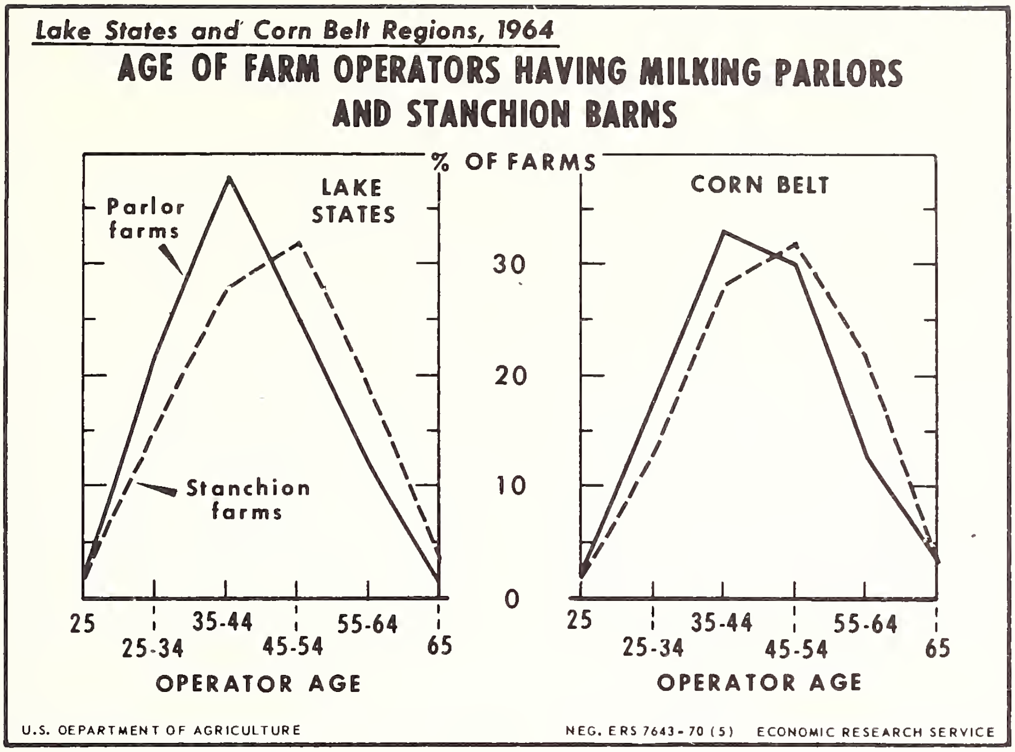

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Figure 2

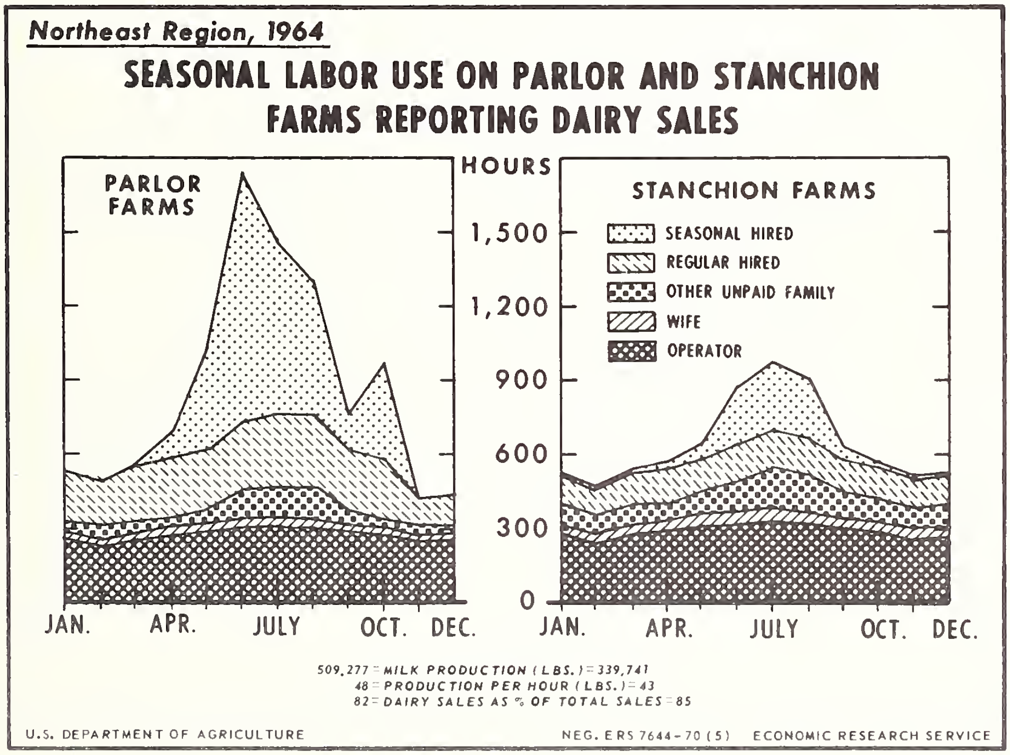

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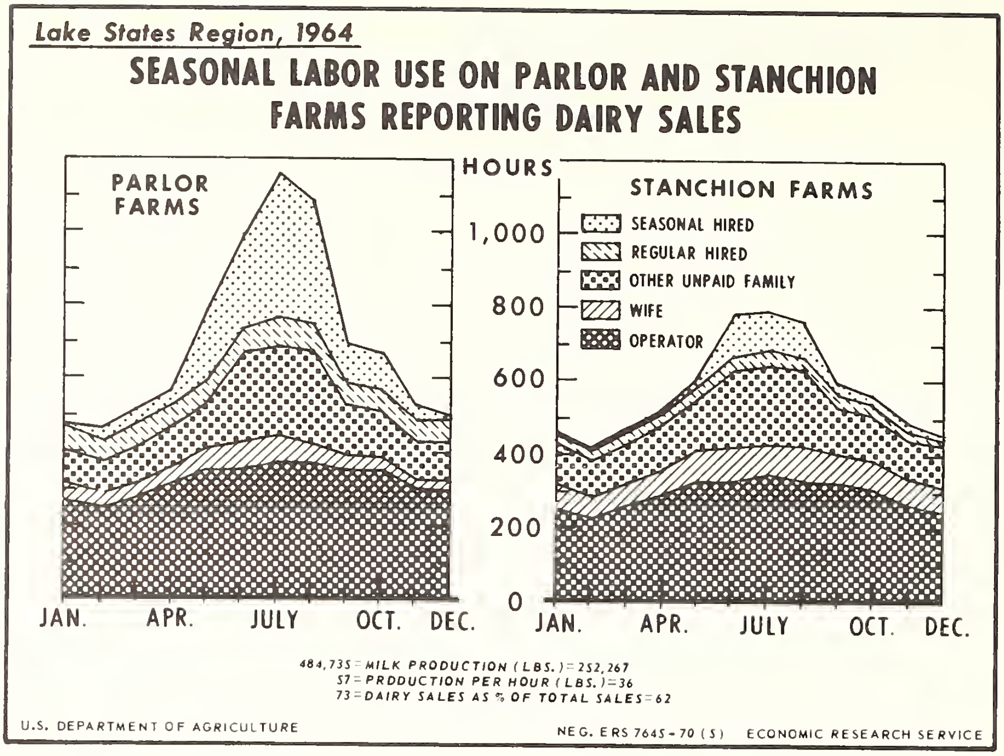
Figure 3


Lake States Region, 1964

SEASONAL LABOR USE ON PARLOR AND STANCHION FARMS REPORTING DAIRY SALES

484,735 = MILK PRODUCTION (LBS.) = 252,267
57 = PRODUCTION PER HOUR (LBS.) = 36
73 = DAIRY SALES AS % OF TOTAL SALES = 62

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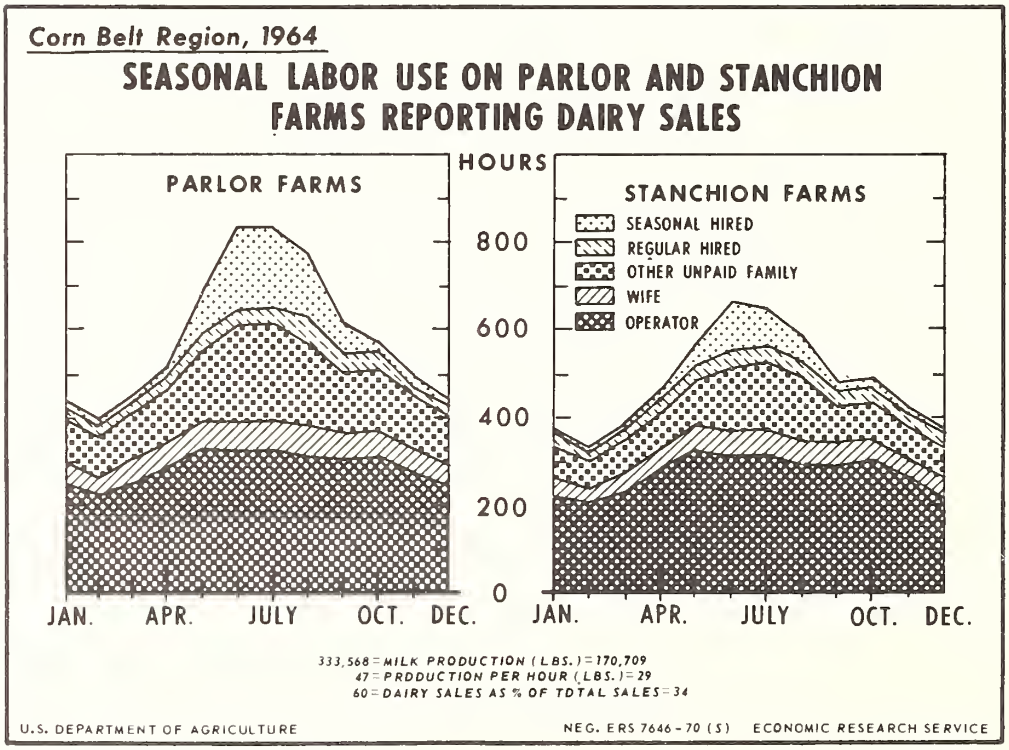
Figure 4


Corn Belt Region, 1964

SEASONAL LABOR USE ON PARLOR AND STANCHION FARMS REPORTING DAIRY SALES

333,568 = MILK PRODUCTION (LBS.) = 170,709
47 = PRODUCTION PER HOUR (LBS.) = 29
60 = DAIRY SALES AS % OF TOTAL SALES = 34

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Figure 5

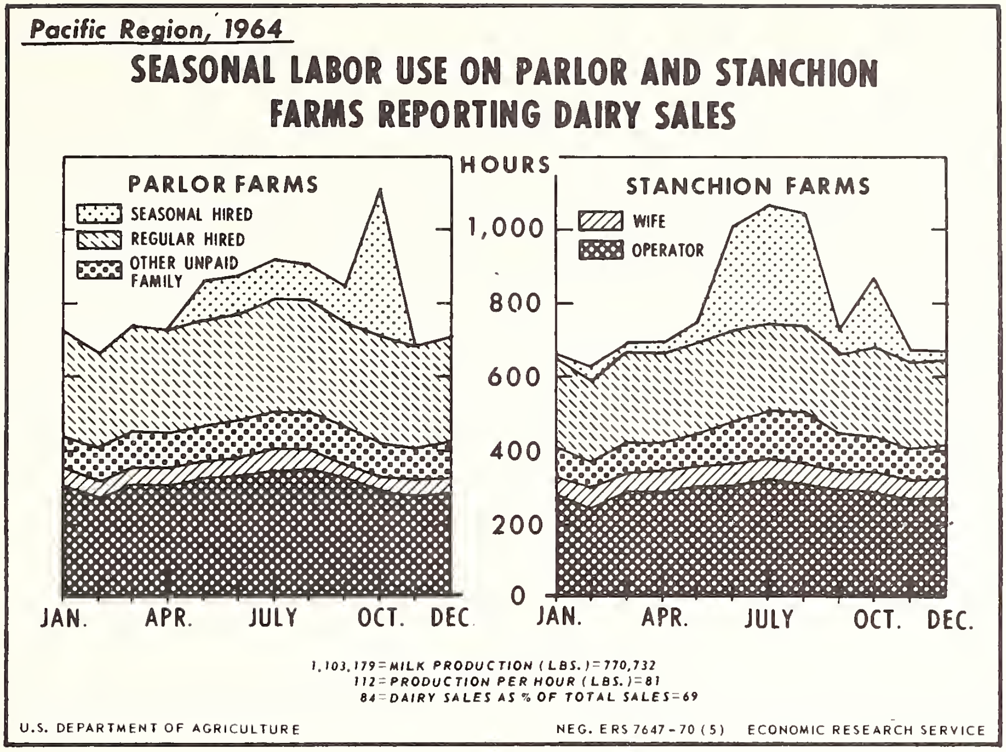

Figure 6

STATISTICAL RELATIONSHIP BETWEEN SELECTED FARM CHARACTERISTICS

The relationship of farm characteristics to each other provides additional insights into the forces influencing the dairy production sector. Simple regression analysis was used to test for a significant relationship between the following selected pairs of farm characteristics:

(1) Size of dairy enterprise and operator's age

(2) Total farm liabilities and operator's age

(3) Size of dairy enterprise and total farm liabilities

(4) Size of dairy enterprise and the farm's degree of specialization in dairy production

No attempt was made to specify all the factors that are likely to influence the variation in total farm liabilities or size of dairy enterprise. Since many of the important factors or variables are left out of the regression equation, two things limit the results. First, the single independent variable may explain little of the variation in the dependent variable (low simple correlation coefficient) and second, the regression coefficient may be biased and, therefore, a poor estimate of the true relationship between the characteristics.

The reasons for suspecting the hypothesized relationships between the above characteristics and the probable nature of these relationships have been discussed earlier in this report. Table 14 presents results of the simple regression analysis. The following are highlights: (1) Variation in operator's age explains little of the variation in size of dairy enterprise. However, the regression coefficients were negative, indicating that the older the farm operator the smaller the quantity of milk sold. (2) Age explained little of the variation in liabilities, but the regression coefficients were negative--indicating liabilities decrease as operator's age increases. (3) Liabilities increased as the size of dairy enterprise increased. However, the relationship is not as strong as expected. (4) Positive regression coefficients indicate that the larger the dairy enterprise, the greater the proportion of total sales from dairy sources, as expected. In regions where most farms were quite specialized, there was, as expected, a very weak relationship and little variation in degree of specialization in dairying explained by size of dairy enterprise.

Table 1.--Distribution of farms reporting dairy sales by pounds of milk sold, by region, 1964

Milk sold per farm (1,000 pounds)	Northeast	Lake States	Corn Belt	Northern Plains	Appala-chian	Delta States	Southern Plains	Pacific	Total
	Percentage of farms surveyed 1/								
0-99	3	10	40	64	62	33	22	13	2/
100-199	20	30	22	21	17	26	8	11	2/
200-299	28	28	19	6	8	21	14	13	2/
300-399	22	17	10	5	4	11	13	12	2/
400-499	10	8	5	2	3	2	12	6	2/
500-899	14	7	6	2	5	3	22	14	2/
900 and over	3	1	1	3/	1	4	9	28	2/
	Milk sold per farm (1,000 pounds)								
Average, all farms	344	260	191	108	142	264	447	834	265

1/ May not add to 100 due to rounding.
2/ Data not computed.
3/ Less than 0.5 percent.

Table 2.--Distribution of farms reporting dairy sales by the proportion of total sales from dairy sources, by region, 1964

Percentage of total farm sales from dairy sources	Northeast	Lake States	Corn Belt	Northern Plains	Appala-chian	Delta States	Southern Plains	Pacific	Total
	Percentage of farms surveyed 1/								
Less than 10	2/	4	25	62	15	4	14	9	3/
10-29	1	6	24	15	28	11	4	2	3/
30-49	2	17	19	13	20	10	5	6	3/
50-69	8	25	15	6	16	6	11	14	3/
70-89	42	40	16	4	12	23	39	38	3/
90-100	47	8	2	2/	9	46	27	31	3/
	Percentage of total farm sales from dairy sources								
Average, all farms	85	63	37	16	42	73	68	72	54

1/ Data may not add to 100 due to rounding.
2/ Less than 0.5 percent.
3/ Data not computed.

Table 3.--Distribution of farms reporting dairy sales by age of operator, by region, 1964

Age of operator	Northeast	Lake States	Corn Belt	Northern Plains	Appala-chian	Delta States	Southern Plains	Pacific	Total
	Percentage of farms surveyed 1/								
Under 25 years......	13	2	1	1	2	1	1	0	2/
25-34...............	15	15	14	16	9	8	16	13	2/
35-44...............	24	29	30	28	25	27	24	26	2/
45-54...............	29	32	31	32	29	44	31	33	2/
55-64...............	21	18	20	21	25	19	25	25	2/
65 years and over...	8	4	4	2	10	1	3	3	2/
	Age of operator (years)								
Average, all farms..	47	45	46	45	49	48	47	48	46

1/ Data may not add to 100 due to rounding.
2/ Data not computed.

Table 4.--Average market value of assets owned and liabilities on farms reporting dairy sales, by region, Spring 1965 1/

Item	Northeast		Lake States		Corn Belt		Northern Plains	
	Owned assets	Liabilities	Owned assets	Liabilities	Owned assets	Liabilities	Owned assets	Liabilities
	Dollars							
Farm property operated:								
Land and buildings	28,645	5,673	28,928	6,521	30,544	7,005	32,387	5,895
Livestock	11,413	1,591	8,394	907	8,036	1,053	9,041	2,212
Motor vehicle & machinery	9,804	1,443	8,677	869	8,043	836	9,136	1,210
Feed, fertilizer and other supplies	512	215	223	17	149	17	242	30
Harvested crops in storage	1,325	11	1,967	32	2,359	50	1,763	73
Other farm properties owned but not operated	213	5	315	29	610	25	564	18
Nonfarm real estate owned	726	52	220	50	306	60	279	84
Nonfarm business owned	175	12	144	42	236	26	186	36
Financial assets owned	2,829	--	1,674	--	1,978	--	2,337	--
Other unsecured debts	--	290	--	264	--	518	--	379
Total	55,642	9,292	50,542	8,731	52,261	9,590	55,935	9,937

Item	Appalachian		Delta States		Southern Plains		Pacific	
	Owned assets	Liabilities	Owned assets	Liabilities	Owned assets	Liabilities	Owned assets	Liabilities
	Dollars							
Farm property operated:								
Land and buildings	31,094	3,999	32,417	4,422	46,552	6,288	76,751	14,849
Livestock	5,551	316	9,453	756	14,673	3,609	31,091	4,856
Motor vehicle & machinery	5,823	473	7,028	372	9,895	750	13,307	911
Feed, fertilizer and other supplied	246	41	432	26	781	77	981	22
Harvested crops in storage	639	0	285	14	266	--	1,552	11
Other farm properties owned but not operated	80	20	41	14	716	--	3,787	1,927
Nonfarm real estate owned	568	81	107	7	878	101	1,015	106
Nonfarm business owned	231	6	431	155	2,653	898	1,662	123
Financial assets owned	3,026	--	2,076	--	3,784	--	5,797	--
Other unsecured debts	--	262	--	124	--	454	--	1,049
Total	47,258	5,198	52,270	5,890	80,198	12,177	135,943	23,854

1/ Market value at the time of the survey.

Table 5.--Distribution of farms reporting dairy sales by percentage of liabilities to assets owned, by region, 1964

Percentage of liabilities to assets owned	Northeast	Lake States	Corn Belt	Northern Plains	Appala-chian	Delta States	Southern Plains	Pacific
	Percentage of farms surveyed 1/							
Less than 5	46	40	42	32	56	50	40	40
5-9	7	8	9	8	7	12	7	1
10-29	26	29	27	33	21	22	34	35
30-49	13	16	15	20	11	10	16	20
50 and over	8	7	7	7	5	6	3	4
	Percentage of liabilities to assets owned							
Average, all farms	17	17	18	18	11	11	15	18

1/ Data may not add to 100 due to rounding.

Table 6.--Number and percentage of farms having milking parlors, by type of parlor and region, 1964

Region	Farms reporting			Percentage of parlors by type			
	Total	Parlors		Herringbone	Walk-through	side-opening	Other
		Total	As percentage of total farms				
	-----Number-----		---Percent---				
Northeast	562	25	4	28	32	40	0
Lake States	1,052	40	4	15	22	63	0
Corn Belt	757	154	20	13	25	40	22
Northern Plains	346	36	10	14	42	44	0
Appalachian	260	161	62	5	52	29	14
Delta States	93	34	37	9	38	35	18
Southern Plains	64	16	25	12	63	25	0
Pacific	94	35	37	6	46	48	0
Total	1/3,228	501	15	10	39	39	12

1/ Some farms did not report type of housing facilities.

Table 7.--Importance of milking parlors by region, 1958 and 1964

Region	Percentage of cows milked in parlors, 1958 1/	Percentage of farms reporting milking parlors, 1964 2/	Percentage of milk produced in parlors, 1964 2/
	Percent		
Northeast	4	4	5
Lake States	4	4	7
Corn Belt	18	20	33
Northern Plains	11	10	29
Appalachian	22	62	62
Delta States	25	37	36
Southern Plains	25	25	33
Pacific	21	37	46
United States	13	--	--

1/ Csorba, J.J., and Butler, G.C., Dairy Cows: Housing and Methods of Milking, U.S. Dept. Agr., Econ. Res. Serv., ERS-15. Sample excluded all farms having fewer than 5 cows.

2/ ERS Pesticide Survey, 1964. Sample included farms having gross sales of $5,000 or more in all regions except the Appalachian, Southeast, and Delta States, where farm sales were lowered to $2,500.

Table 8.--Liabilities and ratio of liabilities to assets owned for parlor and stanchion farms by region, 1964

Region	Liabilities		Ratio of liabilities to assets owned	
	Parlor farms	Stanchion farms	Parlor farms	Stanchion farms
	Dollars		Percent	
Northeast	26,217	8,943	22	16
Lake States	17,677	8,484	24	17
Corn Belt	11,061	9,294	18	16
Northern Plains	16,065	9,413	25	19
Appalachian	6,782	4,948	13	12
Delta States	7,615	5,454	16	13
Southern Plains	16,846	12,322	17	16
Pacific	28,042	22,840	22	16

Table 9.--Distribution of farms reporting dairy sales by pounds of milk sold, parlor and stanchion farms, by region, 1964

Milk sold per farm (1,000 pounds)	Northeast		Lake States		Corn Belt		Northern Plains		Appalachian	
	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion
	Percentage of farms surveyed									
0-99	--	3	--	10	14	42	12	67	49	38
100-199	6	21	9	31	22	24	12	24	19	30
200-299	25	28	20	28	20	17	18	5	13	11
300-399	12	22	21	17	16	9	34	2	4	8
400-499	13	10	15	8	7	4	9	1	7	5
500-899	38	13	26	6	17	3	15	1	6	8
900 and over	6	3	9	--	4	1	--	--	2	--
	Milk sold per farm (1,000 pounds)									
Average, all farms	509	340	485	252	234	171	322	93	190	193

Milk sold per farm (1,000 pounds)	Delta States		Southern Plains		Pacific		Total	
	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion
	Percentage of farms surveyed							
0-99	20	27	25	11	--	16	1/	1/
100-199	30	29	17	8	9	12	1/	1/
200-299	27	24	--	19	14	12	1/	1/
300-399	10	14	8	17	19	10	1/	1/
400-499	7	--	8	13	10	6	1/	1/
500-899	3	3	25	23	5	20	1/	1/
900 and over	3	3	17	9	43	24	1/	1/
	Milk sold per farm (1,000 pounds)							
Average, all farms	281	294	660	452	1,103	771	367	247

1/ Data may not add to 100 due to rounding.

Table 10.--Distribution of farms reporting dairy sales by percentage of total sales from dairy sources, parlor and stanchion farms, by regions, 1964

Percentage of total sales from dairy sources	Northeast	Lake States	Corn Belt	Northern Plains	Appala- chian	Delta States	Southern Plains	Pacific
	Percent of parlor farms 1/							
Parlor farms:								
Less than 30	6	3	20	21	28	3	8	--
30-79	19	44	51	61	55	23	50	29
80 or more	75	53	29	18	17	74	42	71
	Percentage of total sales from dairy sources							
Average, all farms	82	73	60	49	49	82	68	84
	Percent of stanchion farms 1/							
Stanchion farms:								
Less than 30	1	11	51	80	18	10	10	13
30-79	17	58	41	19	47	20	23	33
80 or more	82	31	8	1	35	70	68	54
	Percentage of total sales from dairy sources							
Average, all farms	85	62	34	13	59	79	76	69

1/ Data may not add to 100 due to rounding.

Table 11.--Average age of operator on parlor and stanchion farms by region, 1964

Region	Average age of operator	
	Parlor farms	Stanchion farms
	Years	
Northeast	47.5	47.2
Lake States 1/	42.0	45.5
Corn Belt 1/	44.2	46.2
Northern Plains	44.5	45.2
Appalachian	47.9	49.2
Delta States	48.0	47.0
Southern Plains	45.4	45.9
Pacific	49.2	47.3

1/ Significantly different at the 90-percent level of confidence.

Table 12.--Average labor used on parlor and stanchion farms by region, 1964

Labor distribution	Northeast		Lake States		Corn Belt		Northern Plains	
	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion
	Hours							
Hours worked by:								
Operator	3,338	3,547	3,868	3,581	3,449	3,290	3,655	3,267
Wife	387	554	570	875	679	610	642	494
Unpaid family	749	1,209	1,686	1,662	1,724	1,084	1,286	1,177
Regular hired	2,875	1,572	777	368	394	425	705	249
Seasonal hired	3,301	933	1,551	431	788	385	517	558
Total	10,650	7,815	8,452	6,917	7,034	5,794	6,805	5,745
	Percent							
Proportion of total hours worked by:								
Operator	31	45	46	52	49	57	54	57
Wife	4	7	7	13	10	10	9	9
Unpaid family	7	16	20	24	24	19	19	20
Regular hired	27	20	9	5	6	7	10	4
Seasonal hired	31	12	18	6	11	7	8	10
Total	100	100	100	100	100	100	100	100

Table 12.--Average labor used on parlor and stanchion farms by region, 1964--Continued

Labor distribution	Appalachian		Delta States		Southern Plains		Pacific	
	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion	Parlor	Stanchion
	Hours							
Hours worked by:								
Operator	2,783	2,998	2,702	2,555	3,104	3,363	3,756	3,524
Wife	429	500	567	828	639	982	554	685
Unpaid family	1,131	1,193	1,300	1,051	894	735	1,114	1,129
Regular hired	1,588	1,599	739	605	2,333	1,454	3,473	2,830
Seasonal hired	1,626	1,877	837	2,314	1,225	907	929	1,381
Total	7,557	8,167	6,145	7,353	8,195	7,441	9,826	9,549
	Percent							
Proportion of total hours worked by:								
Operator	37	37	44	35	38	45	38	37
Wife	6	6	9	11	8	13	6	7
Unpaid family	15	15	21	14	11	10	11	12
Regular hired	21	19	12	8	28	20	35	30
Seasonal hired	21	23	14	32	15	12	10	14
Total	100	100	100	100	100	100	100	100

Table 13.--Labor used, milk sales, and milk production per hour on parlor and stanchion farms by region, 1964

Region	Parlor farms				Stanchion farms			
	Percentage of total sales from dairy sources	Labor input	Milk sales	Milk production per hour	Percentage of total sales from dairy sources	Labor input	Milk sales	Milk production per hour
	Percent	Hours	1,000 pounds	Pounds	Percent	Hours	1,000 pounds	Pounds
Northeast.............	82	10,650	509	48	85	7,815	340	43
Lake States...........	73	8,452	485	57	62	6,917	252	36
Corn Belt.............	60	7,034	334	47	34	5,794	171	30
Northern Plains........	49	6,805	322	47	13	5,745	93	16
Appalachian...........	49	7,557	190	25	59	8,167	193	24
Delta States...........	82	6,145	281	46	79	7,353	294	40
Southern Plains........	68	8,195	660	81	76	7,441	452	61
Pacific...............	84	9,826	1,103	112	69	9,549	771	81
Total............	64	7,621	367	48	52	6,835	247	36

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Table 14.--Estimated simple regression equations between selected pairs of farm characteristics by region, 1964 1/

Region	Number of observations	Equation 1		Equation 2		Equation 3		Equation 4	
		Relating operator's age to pounds of milk sold		Relating operator's age to total liabilities		Relating total liabilities to pounds of milk sold		Relating percentage of farm sales from dairy products to pounds of milk sold	
		b	r^2 2/	b	r^2 2/	b	r^2 2/	b	r^2 2/
Northeast	564	3/-1,996	0.008	4/-324	0.066	4/.1671	0.138	4/2,699	0.019
Lake States	1055	4/-1,641	0.010	4/-307	0.083	4/.4140	0.025	4/3,188	0.186
Corn Belt	792	4/-3,282	0.031	4/-277	0.031	4/.2853	0.085	4/4,415	0.404
Northern Plains	386	3/-1,381	0.008	4/-190	0.021	4/.7556	0.011	4/4,381	0.504
Appalachian	399	3/-1,759	0.001	4/-157	0.030	4/.1737	0.100	4/4,091	0.373
Delta States	103	-4,559	0.0	4/-288	0.107	.1015	0.012	4/5,266	0.092
Southern Plains	74	3/-11,021	0.046	4/-626	0.201	3/.1043	0.070	4/6,133	0.161
Pacific	90	3/-24,256	0.039	3/-769	0.031	4/.0575	0.347	4/12,865	0.088

1/ Regression equations of y on x are of the form: $y = a + b X$.
2/ Adjusted for degrees of freedom.
3/ Adjusted for degrees of freedom.
4/ Significant at the 99-percent level of confidence.

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